

Western Canal Water District Groundwater Monitoring Project

1. Project Description

<i>Project Type:</i>	Conjunctive water management and groundwater/surface water planning
<i>Location:</i>	Butte County
<i>Proponent(s):</i>	Western Canal Water District (WCWD or District)
<i>Potential Beneficiaries:</i>	Local groundwater users, downstream water users
<u>Total Project Components:</u>	Short-term components; depending upon the outcome of the short-term project, conjunctive use within the District could be expanded
<i>Potential Supply:</i>	Possibly 29,000 acre-feet per year (ac-ft/yr) under the short-term component, perhaps more at a future date
<i>Cost:</i>	Unknown
<i>Current Funding:</i>	None
<u>Short-term Components:</u>	Test-hole drilling, monitoring well construction, groundwater monitoring
<i>Potential Supply (by 2003):</i>	29,000 ac-ft/yr
<i>Cost:</i>	\$323,000
<i>Current Funding:</i>	None
<i>Implementation Challenges:</i>	Local concerns regarding export of groundwater
<i>Key Agencies:</i>	U.S. Bureau of Reclamation (USBR), California Department of Water Resources (DWR), Butte Basin Water Users Association, Glenn County Water Advisory Committee (WAC)

Summary

WCWD proposes to develop a groundwater monitoring plan to monitor, analyze, and implement effective management practices that utilize and protect its groundwater resources and facilitate conjunctive use operations. Figure 16A-1 presents a project location map. The plan intends to prevent any adverse impacts to the local aquifer and third-party groundwater pumpers. The District proposes to construct five dedicated monitoring wells. The monitoring data from these wells and others already in place would be used to obtain

information regarding the feasibility of future participation in surface water transfers using an in lieu pumping program that would not negatively impact local groundwater supplies and third parties. These future transfer programs have the potential to increase Delta supplies and increase water supply reliability annually throughout the CALFED solution area by 29,000 ac-ft/yr or more.

Short-term Component

The short-term component of this project is the construction and initial evaluation of five groundwater monitoring wells at locations identified by the Glenn County WAC to satisfy its Basin Management Objectives and by the Butte County Water Commission Technical Advisory Committee (TAC). The wells would eliminate gaps in the water-level data collection network and would complement an existing grid of idle irrigation wells already being monitored by DWR, Butte County, and Glenn County.

Work Plan

In 1990, the District was asked to participate in a test program by DWR wherein the District pumped 7,750 ac-ft of groundwater for waterfowl management and rice straw decomposition during October through December in lieu of using surface water for this task. Surface water that was conserved was left in Lake Oroville for other uses.

In 1991, 1992, and 1994, the District was asked to participate in the state drought water bank by DWR. In these programs, the District contributed 40,000 ac-ft; 49,610 ac-ft; and 74,222 ac-ft, respectively, of their allocation of surface water through programs that included conservation, minimal land fallowing, and groundwater pumping in substitution of its surface supply during the irrigation season. This allowed an equivalent volume of District surface water supply to remain in Lake Oroville.

As a result of the 1990 test program and the 1991, 1992, and 1994 state drought water banks, there were concerns raised regarding potential third-party impacts within the Butte Basin. In response to these concerns, in November 1996 an initiative was placed on the ballot titled "An Ordinance to Protect the Groundwater Resources in Butte County" (Ordinance). This Ordinance was passed by the voters and incorporated into Chapter 33 of the Butte County Code. Chapter 33 requires a permit to transfer groundwater or surface water outside of the county, which is replaced by pumping groundwater for overlying uses. The ordinance required the formation of a Water Commission by Butte County to approve water transfer permits. In addition to the formation of the Water Commission, the Ordinance requires the establishment of a groundwater monitoring program to provide information on water levels throughout the basin.

The Northern District DWR has a countywide well-monitoring grid that is measured twice a year, once during March and once during October. Data from these wells provide historical data on the groundwater levels of the basin and other areas throughout the county. The county also collects water level data at these same sites during the months of July and August, as required by the Ordinance.

In 1997, the county, through TAC, identified potential data gaps in the monitoring grid and recommended additional monitoring wells in specific areas. Using these recommendations, the county has worked to increase the number of monitoring wells by using idle irrigation

wells and the construction of new wells within the county. In cooperation with landowners and the Northern District, the county has added nine monitoring sites to the grid. However, TAC recommends additional monitoring to augment this data collection effort. TAC would determine the location and design of the proposed five dedicated monitoring wells.

The monitoring data from the new monitoring wells would be combined with data from existing sources to help evaluate the feasibility of future participation in surface water transfers utilizing an in lieu-of-groundwater-pumping program. These future transfer programs have the potential to increase Delta supplies and increase water supply reliability throughout the CALFED solution area. However, without the adequate information as required by the local Ordinance, future participation by the District in programs similar to those listed above will be prohibited.

Hydrogeologic Setting

The discontinuous nature of the alluvial deposition in the District area makes correlation of aquifers from well to well difficult. As streams coursed north to south and east to west through time, new channels were created and abandoned, forming a complex system of now-buried, coarse-grained channel deposits. The extent of each geologic formation in the subsurface is also difficult to determine because of the lack of distinctive beds with which to correlate surface geology. The only easily identifiable, distinctive subsurface materials are volcanic sands and gravels and lavas.

Water level measurements show that groundwater occurs in two general zones in the area. Aquifer tests show that leakage between the two zones does occur, but confining beds significantly limit hydrologic continuity between the two zones. Levels measured in shallow wells (completed only in the unconfined, free water zone) and in deep wells (completed in lower-confined to semi-confined zones), fluctuated independently of one another. (Measurements were taken in the DWR 1990 Western Canal Groundwater Test Program.)

The direction of groundwater movement may be determined by measuring water levels in wells and calculating variation in elevation from point to point. Since groundwater movement is influenced by gravity, direction of movement is at right angles to water surface elevation contours from higher to lower elevations. Where contour lines are closer together, the gradient is steeper and the flow is faster, although the total quantity of flow for the same cross-sectional area may not be greater.

Groundwater levels fluctuate annually in response to natural discharge and pumping and to recharge from stream percolation, infiltration of rainfall, and applied irrigation water. Levels are usually highest in the spring and lowest in the fall. Long-term fluctuations occur when recharge either exceeds discharge or is less than discharge. The hydrographs of four wells (Figure 16A-2, 16A-3, 16A-4, and 16A-5) illustrate the long-term fluctuations of water levels in wells within and adjacent to the District. They show normal fluctuation from seasonal use and periods of drought and high precipitation. Hydrographs for three of the wells show water level drawdown caused by heavy summertime pumping during 1994 (Figure 16A-2 and 16A-3, wells 20N/1E-36B1 and 19N/1E-16H1) and 2000 (Figure 16A-4, Well 17N/1E-17F1). In all three cases, water levels fully recovered to pre-pumping conditions following winter season recharge. The hydrograph for the fourth well (Figure 16A-5, Well 20N/1E-35C1) shows that historical water levels have not changed significantly since at

least 1945. The groundwater basin remains essentially full, with groundwater occurring throughout the District in wells at less than 10 feet below ground surface.

Long-term Component

A long-term component of this project is unknown at this time; however, depending on the outcome of the short-term project, conjunctive use within the District could be expanded.

2. Potential Project Benefits/Beneficiaries

The District currently has the right to divert 295,000 ac-ft of surface water from the Feather River. If the District can establish an in lieu groundwater pumping program that satisfies requirements of the Butte County Water Commission, is based on sound scientific data and analysis, and that offsets surface diversions by only 10 percent in dry and critical years, it would result in 29,000 ac-ft of new water supplies being available for downstream users.

Currently, individuals within the District augment their surface supplies with groundwater pumped from private wells. This project will allow this practice to continue while preventing overdraft or water quality problems from developing. Depending on the outcome of this monitoring, the District would seek to expand the conjunctive use of surface water and groundwater supplies while protecting the groundwater basin. An increase in water supply reliability for groundwater-dependent regions would occur if in lieu recharge was determined effective according to the monitoring results.

The initial beneficiary would be local groundwater users since this work seeks to protect them and their continued reliance on the groundwater resources. Potentially, this program could benefit other downstream water users and augment total system supplies.

This plan would seek to monitor and protect groundwater quality and prevent migration of any contamination into the groundwater basin. This would prevent any contaminated groundwater from being pumped and mixed with existing surface water supplies.

The monitoring plan would help determine safe yield of the groundwater basin and answer questions regarding impacts to other groundwater users (third-party impacts). In addition, through the monitoring outlined in the plan, stream aquifer interaction could be defined.

3. Project Costs

The cost opinions shown, and any resulting conclusions on project financial or economic feasibility or funding requirements, have been prepared for guidance in project evaluation from the information available at the time of the estimate. It is normally expected that cost opinions of this type, an order-of-magnitude cost opinion, would be accurate within +50 to -30 percent. Project costs were developed at a conceptual level only, using data such as cost curves and comparisons with bid tabs and vendor quotes for similar projects. The costs were not based on detailed engineering design, site investigations, and other supporting information that would be required during subsequent evaluation efforts.

The final costs of the project and resulting feasibility will depend on actual labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, continuity of personnel and engineering, and other variable factors. As a result, the final project costs will vary from the opinions presented here. Because of these factors, project feasibility, benefit/cost ratios, risks, and funding needs must be carefully reviewed prior to making specific financial decisions or establishing project budgets to help ensure proper project evaluation and adequate funding.

The largest single cost of the project would be for the development of the monitoring facilities. The District estimates the cost of five dedicated monitoring wells at \$250,000. Additional costs for staff administration time and monitoring equipment would be approximately \$20,000, and engineering services would amount to an estimated \$40,000. Adding contingencies brings the total planning-level project cost to \$322,500.

TABLE 16A-1
Planning-level Project Costs
Western Canal Water District Groundwater Monitoring Program

Item	Quantity	Units	Unit Price	Total Cost	Assumptions
Dedicated Monitoring Wells	5	Each	\$50,000	\$250,000	
Water Level Recording Devices	5	Each	\$3,000	\$15,000	Stevens F-type recorders
Administrative Services	1	Lump Sum	\$5,000	\$5,000	Data collection, 1 year
Engineering	5	Each Well	\$8,000	\$40,000	Monitoring well construction oversight and data evaluation, 1 year
Subtotal				\$310,000	
Contingencies and Allowances				\$12,500	
Total Initial Project Cost				\$322,500	

4. Environmental Issues

This project is primarily an exercise in data collection and analysis. Minimal physical impacts are anticipated to occur as a result of the project. The monitoring wells would be sited to minimize any disruption of local terrestrial habitats and species. Environmental improvements would not occur as a direct result of the project; however, data would be generated from the project that could be used to evaluate future conjunctive use projects. It is anticipated that the appropriate level of environmental documentation for the project would be a Negative Declaration, requiring a very minimal degree of effort.

A draft California Environmental Quality Act (CEQA) environmental checklist has been prepared for this proposed project and is included as an attachment to this evaluation. The checklist provides a preliminary assessment of the environmental areas of concern, as well as areas that are not likely to be of concern, associated with this project. The checklist would be finalized as part of the environmental compliance required for project implementation.

5. Implementation Challenges

There are serious concerns about the long-term drawdown of groundwater tables and land subsidence as a result of any conjunctive use program. Completion of the monitoring network would help in determining the effects of increased groundwater pumping. Local involvement would be required to implement any conjunctive use project, and the modeling effort that would be supported by the monitoring program could be a vehicle for public involvement. Having the model grounded in current, publicly-accepted data would help create public confidence in the model, and the model results may be more believable when prospective conjunctive use programs are evaluated.

6. Implementation Issues

As shown on Figure 16A-6, the District is prepared to issue a request for proposals for the monitoring well construction immediately on receipt of project funding. The District believes that monitoring well construction could be completed within 4 months after contracting with a driller. After construction of the new monitoring wells, the District would prepare and submit quarterly reports to DWR discussing monitoring activities and interpretation of results as they become evident. The dissemination of these reports would be a vehicle to move the collected data and evaluation results into the public record for interested parties' review.

The District has worked closely with the Butte Basin Water Users Association, is an active participant in the Glenn County WAC, and has discussed this project with DWR. As part of the plan, the District would continue this public outreach and receive input on the continued development of this plan. The District is aware that this program may cause some controversy with DWR and its Integrated Storage Investigation program. However, the District has proposed, as part of this plan, to work closely with state and federal agencies to allow the free exchange of information obtained through its monitoring while maintaining local control of its groundwater resources.

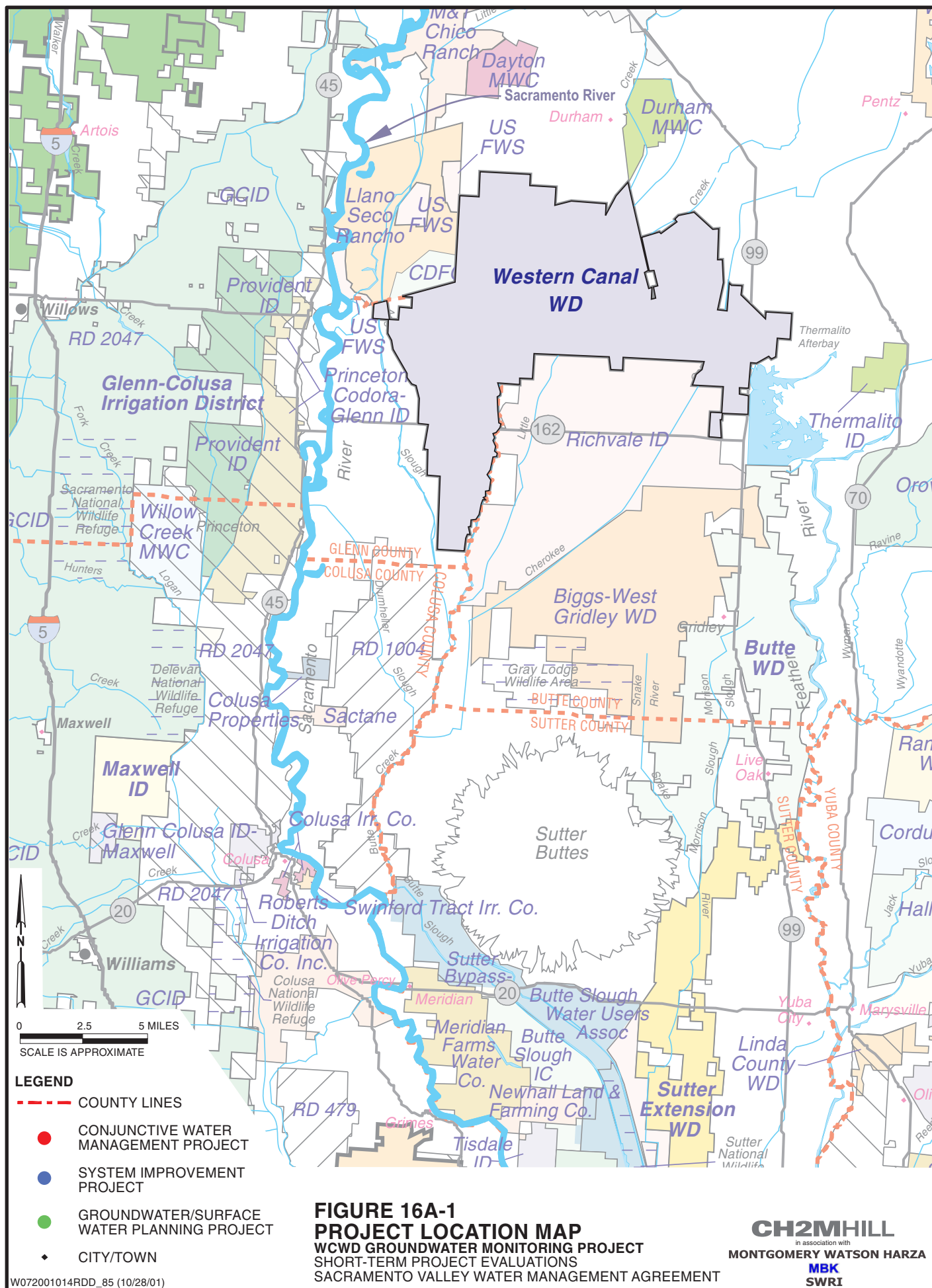
The addition of these dedicated monitoring wells would elevate the quality of the groundwater level data for key regions within the District. The data would provide the opportunity for well-controlled aquifer performance evaluations as well as a safeguard to the environment and third parties in association with any future conjunctive use of groundwater and surface water.

Groundwater-level data collected from the proposed wells would be shared with DWR and would be included in the groundwater level database that is available to the public on the internet.

The District's Groundwater Monitoring Project would comply with all local, state, and federal laws, rules, and regulations. Any permits or special studies that may be required pursuant to CEQA would be obtained or performed by the District.

The District has participated in the extensive discussions that have led to the final Sacramento Valley Settlement Agreement (Settlement Agreement) by the State Water Resources Control Board in Phase 8 of the Bay-Delta hearings. This Settlement Agreement forms a partnership among Sacramento Valley water rights holders, including Western

Canal Water District, water users within the export areas, DWR, and USBR that has never been achieved to this magnitude in history. The Settlement Agreement recognizes the need to increase the overall water supplies available to all water users throughout the state and that a cooperative approach is the most effective means to meet this need. The Settlement Agreement and associated projects must be pursued in unison with CALFED goals, objectives, and program. This proposed project is a project that meets the common goals of the Settlement Agreement and CALFED.



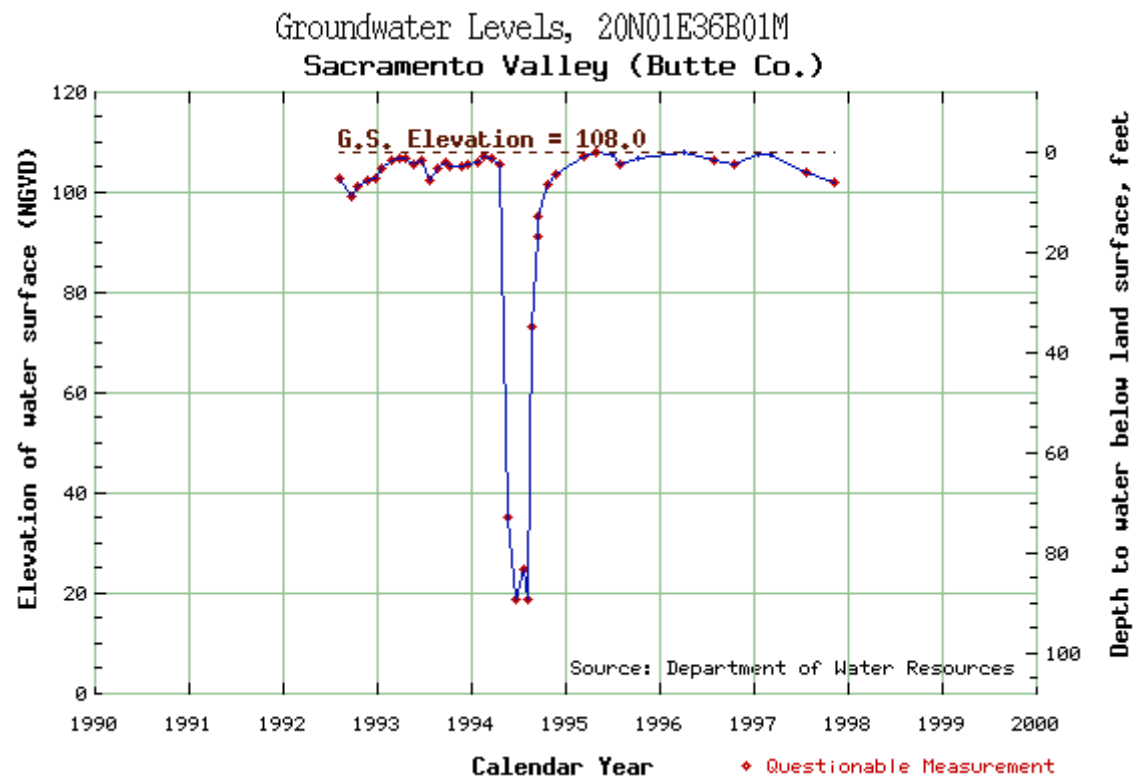


FIGURE 16A-2
HYDROGRAPH FOR WELL 20N/1E-36B1
 WCWD GROUNDWATER MONITORING PROJECT
 SHORT-TERM PROJECT EVALUATIONS
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

CH2MHILL
In association with
MONTGOMERY WATSON HARZA
MBK
SWRI

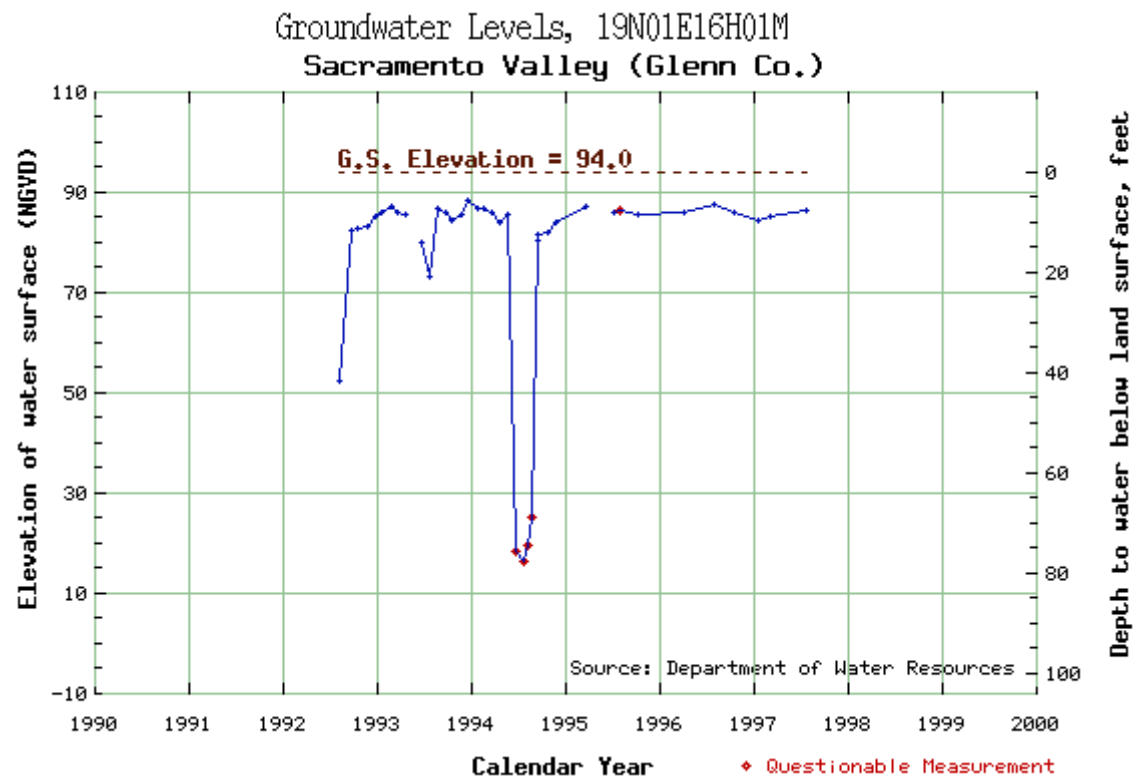


FIGURE 16A-3
HYDROGRAPH FOR WELL 19N/1E-16H1
 WCWD GROUNDWATER MONITORING PROJECT
 SHORT-TERM PROJECT EVALUATIONS
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

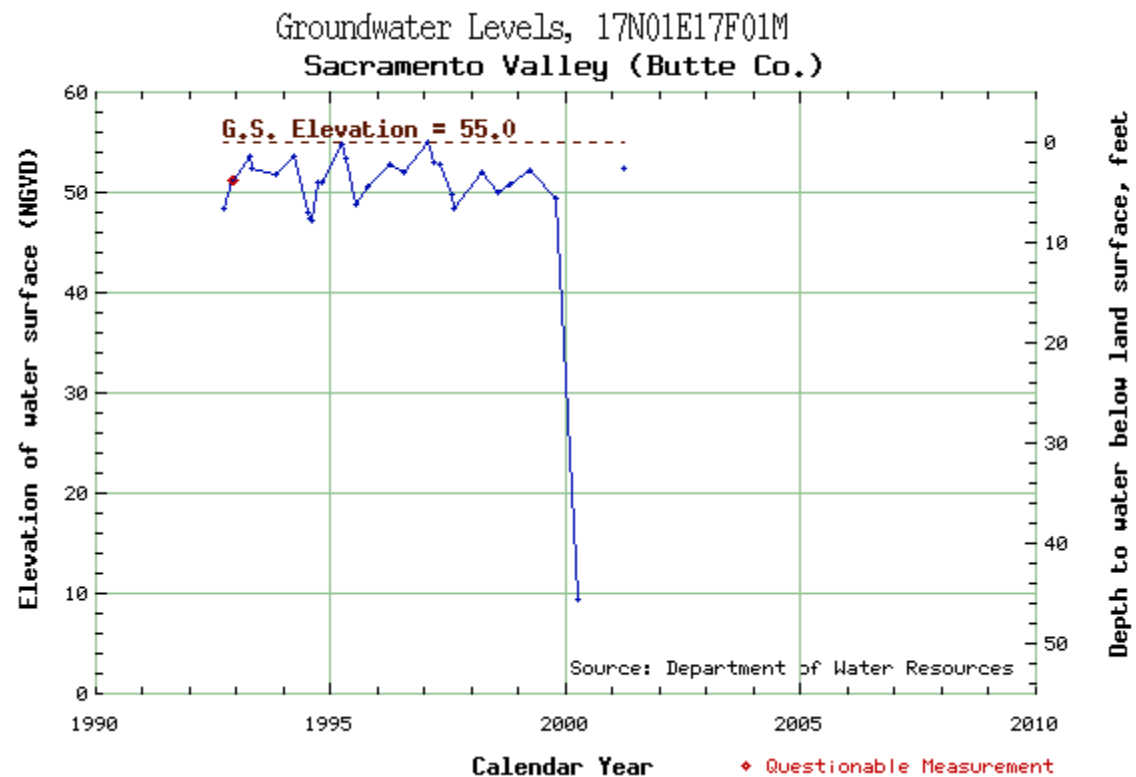


FIGURE 16A-4
HYDROGRAPH FOR WELL 17N/1E-17F1
 WCWD GROUNDWATER MONITORING PROJECT
 SHORT-TERM PROJECT EVALUATIONS
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

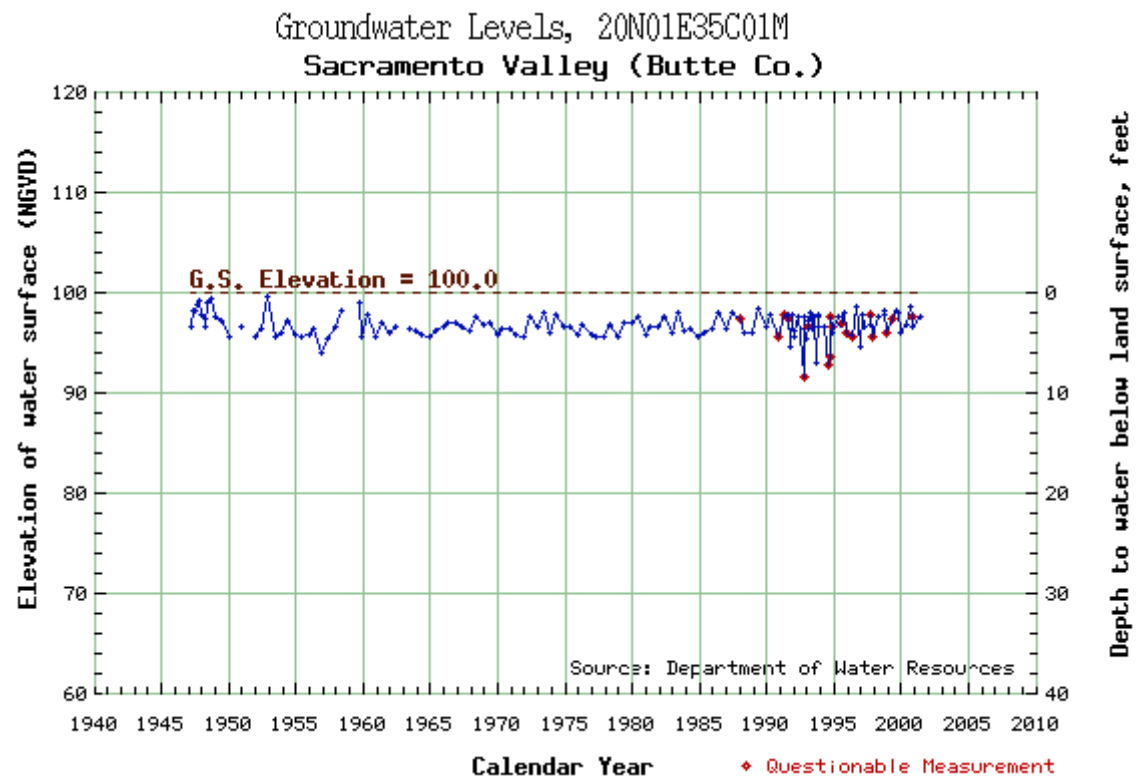


FIGURE 16A-5
HYDROGRAPH FOR WELL 20N/1E-35C1
 WCWD GRO UNDWER MONITORING PROJECT
 SHORT-TERM PROJECT EVALUATIONS
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

CH2MHILL
 in association with
MONTGOMERY WATSON HARZA
MBK
SWRI

**Project 16A – Draft CEQA
Environmental Checklist**

Project 16A—Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

Determination:

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Printed Name

For

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>I. AESTHETICS</u> —Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>II. AGRICULTURE RESOURCES</u> —Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>III. AIR QUALITY</u> —Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>IV. BIOLOGICAL RESOURCES</u> —Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Up to five new monitoring wells may be necessary to adequately monitor groundwater resources in Butte County. These wells may be required to be placed in environmentally sensitive areas. The wells would be sited to minimize any disruption of local habitat areas.</i>				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to IV (a) above.</i>				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or, impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to IV (a) above.</i>				
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>V. CULTURAL RESOURCES</u> —Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>A significant impact would occur if a cultural resource were to be disturbed by activities associated with project development. In the event that an archaeological resource was discovered, appropriate measures would be undertaken to minimize any impacts.</i>				
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to V (a) above.</i>				
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to V (a) above.</i>				

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to V (a) above.</i>				
<u>VI. GEOLOGY AND SOILS</u> —Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>VII. HAZARDS AND HAZARDOUS MATERIALS</u> —				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Construction equipment would require the use of potentially hazardous materials. The potential for significant hazardous material spill would be unlikely because of the limited amount of such materials that would be used onsite. If a spill or release of such materials were to occur, it could potentially be significant unless best management practices (BMPs) were implemented.</i>				
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>See response to VII (a) above.</i>				

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VIII. HYDROLOGY AND WATER QUALITY—				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>There are serious concerns about the long-term draw-down of the groundwater table and land subsidence. Model development would help in determining the effects of increased groundwater pumping. Minimal pumping of groundwater would occur as a result of the monitoring program and model development; however, the impact is considered to be less than significant to groundwater supplies.</i>				
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>IX. LAND USE AND PLANNING</u> —Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>X. MINERAL RESOURCES</u> —Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XI. NOISE</u> —Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. <i>Short-term noise levels are expected to increase for the duration of construction of each monitoring well. These noise increases would be temporary, and mitigation measures would be implemented to reduce any impact to a less than significant level.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to XI (a) above.</i>				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XII. POPULATION AND HOUSING—Would the project:</u>				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XIII. PUBLIC SERVICES—Would the project:</u>				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>XIV. RECREATION—Would the project:</u>				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>XV. TRANSPORTATION/TRAFFIC</u> —Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XVI. UTILITIES AND SERVICE SYSTEMS</u> —				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>XVII. MANDATORY FINDINGS OF SIGNIFICANCE</u>				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>